CRAIG BIHRLE

John Solberg, U.S. Fish and Wildlife Service pilot-biologist, has surveyed breeding waterfowl in North Dakota each May since the late 1980s. Many pilots before him have had the same opportunity since the Service began its survey 50 years ago.

FLYING FOR DUCKS

U.S. Fish and Wildlife Service Aerial Waterfowl Survey Turns 50

By Ken Torkelson, Photos by Craig Bihrle

So you think you're good at waterfowl identification?

Try it from above. About 150 feet above. At 100 miles per hour. While flying a plane.

Yes, it's a difficult task, but every waterfowl hunter in North America depends on the accuracy of those identifications, because it's the most important factor in setting waterfowl seasons and bag limits.

WATERFOWL POPULATION SURVEYS

50 Years & Still Counting

Each spring, 13 pilot-biologists from the U.S. Fish and Wildlife Service leave their home bases at key locations in each of the four waterfowl flyways, and set out for about three weeks of counting ducks, geese and swans, and observing wetland conditions from the Midwest to Alaska.

This year marks the 50th anniversary of the May waterfowl breeding survey, said to be the largest and most comprehensive wildlife survey in the world, as well as one of the longest-running. This year also marks the 20th go-round for John Solberg, a U.S. Fish and Wildlife Service pilot-biologist stationed in Bismarck. "Simply put," says Solberg, "it drives waterfowl management for the entire North American continent."

Technically, waterfowl hunting seasons remain closed each year until the Service verifies that populations are healthy enough to support a regulated hunt, and the information needed to make that determination comes from this science-based survey.

Solberg emphasizes that it's a survey, not a census that attempts to count every duck in an area. "We take a statistically-significant sample, and project a continental picture," he said.

The survey is conducted in May, when all waterfowl species are back on their breeding grounds, and when they're in full breeding plumage, making identification easier. This year, Solberg started his survey work the first week of May in southern South Dakota, then worked up into North Dakota in mid-May. The Fish and Wildlife survey in North Dakota is timed closely with the North Dakota Game and Fish Department's spring waterfowl breeding pair survey.

Aerial Survey History

A 1931 experiment proved planes could be used effectively for wildlife surveys. For more than 20 years, biologists fine-tuned the program by riding along on flights in U.S. Coast Guard, Navy and Army planes. After World War II, a large number of surplus military planes became available, along with a corresponding number of pilots, many with experience in wildlife management. That set the stage for today's aerial waterfowl surveys.

According to Solberg, the survey has changed little since the early days. "Since the counts began in 1955, we have flown transects that are divided into 18-mile segments along section lines in areas that produce waterfowl," he explains. "The pilot counts ducks and identifies species within one-eighth mile of the left side of the plane, and an observer does the same on the right side. The observer also is responsible for noting wetland conditions."

In the not-too-distant past, crews struggled to write down their observations using pencil and paper. That method was followed by tape recorders. Now, there's an on-board

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computer. "While we're calling a sighting into the computer, we press a button, which marks a GPS reading of the exact position," says Solberg.

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John Solberg has seen major changes in North Dakota's landscape since he began flying the U.S. Fish and Wildlife Service's spring breeding waterfowl survey, from mostly dry wetlands and few ducks, to full wetlands and lots of ducks.

Even in the computer age, however, the data must be transcribed, and that easily adds a couple hours to a day that starts at 5 a.m. with a weather check, followed by preflight preparations, and up to five hours of actual flying. "We work a lot of 12- to 14-hour days," notes Solberg, "but it's worth it. We're providing a valuable service and we're part of an international waterfowl management tradition."

While the aerial crews are gathering information from above, ground crews are covering some of the same routes to provide data for comparison. "Since the ground crews see birds that can't be spotted from the air, we get together and come up with a correction factor," explains Solberg.

Since the same routes are flown each year, long-term comparisons – and any necessary adjustments – can be made. "Most of the time, the species and sex restrictions for each season come about because of something picked up during these surveys," Solberg said.

Safe Flying

The Fish and Wildlife Service pilot-biologists have an exemplary safety record. Despite low-level flights, growing number of cell phone towers, wind turbines, severe weather, crop dusters and military traffic, there has never been a fatality in more than 75,000 hours of flying. "We're flying at about the same altitude as the ag pilots," notes Solberg, "so we really have to be on the lookout for them."

The rapid growth in the number of cell phone towers and wind turbines poses a different problem. "They're springing up constantly, but it always takes a long time before they show up on our charts."

There have been some close calls. Solberg says a pintail came through his engine cowling during a flight over Saskatchewan a few years ago. "I had to make a quick landing to check things out and clean up the mess," he recalls.

Solberg gives much of the credit for the safety record to his on-the-ground help. "We really appreciate the FAA, people at the flight service stations, weather briefers and the various vendors who supply us with aviation fuel and maintenance. They get to know what we need, and take very good care of us," he said.

When the crews have completed their assignments, the number-crunchers go to work. A group of waterfowl biologists and statisticians analyzes and interprets the mountains of data gathered by crews in the U.S. and Canada. By late July, out come the overall nesting estimates, just in time for the Service's framework-setting meetings. Soon after, each state and province "selects" its hunting season from within the federal framework, and waterfowl hunters will hear exactly how many birds they'll be allowed, and how many days the season will last.

Solberg believes some hunters don't realize the effort that goes into managing their resource, but says most are appreciative when the surveys are explained to them. "Hunters often expect limits of ducks every day when we declare a liberal season, but annual numbers don't guarantee success or lack of it," he says, explaining that "birds move due to habitat, weather and hunting pressure."

In his years of flying the Prairie Pothole Region, Solberg says he has seen some amazing changes. "When I first started flying the Dakotas in 1988, it was so dry you could see huge alkali dust clouds coming off dry lake beds 10 miles away," he remembers. "It was

that way through the spring of 1993, but the rains came and there was this great metamorphosis by July."

When Mother Nature added water to a landscape that already contained a couple million acres of Conservation Reserve Program grasslands, it created within North Dakota some of the best waterfowl breeding habitat conditions anybody had ever seen. The "duck factory" really produced during that time.

North Dakota's State Survey

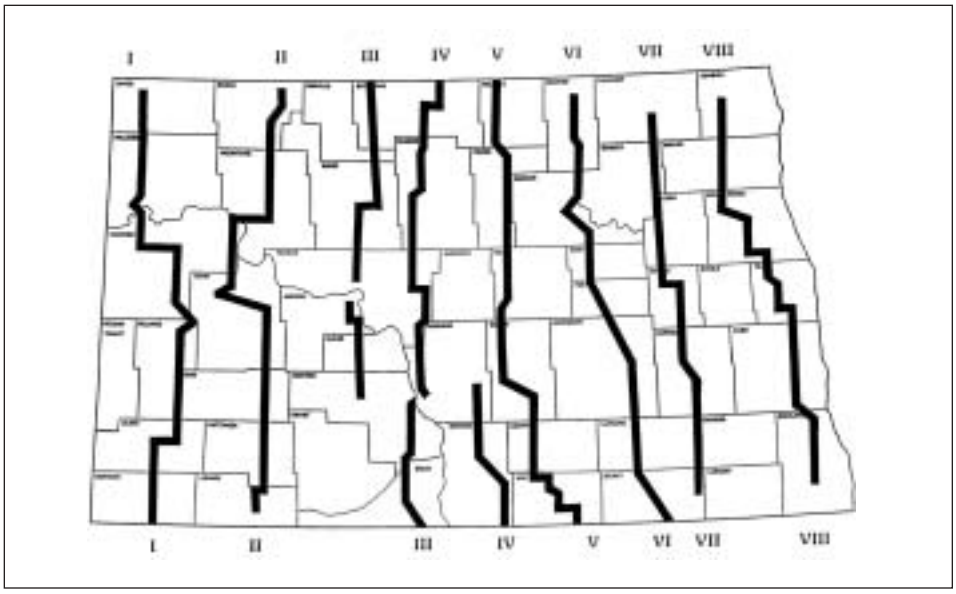
In addition to the Fish and Wildlife Service survey, North Dakota has its own state survey. The Game and Fish Department began its first efforts to survey breeding pairs of ducks in 1948, and has consistent records dating back to the early 1950s.

The Game and Fish survey also occurs in mid-May, requires long days, and provides valuable information. The major difference is that the Game and Fish survey is compiled from roadsides, not the air. It covers eight mostly north-south transects running from the Canadian line to South Dakota. "We stop and look at every body of water within 220 yards of the road," explains biologist Mike Johnson, Department game management section leader.

Data from the two surveys seem to match up well. "There's excellent correlation between the two," notes Johnson. "The duck figures are a 90 percent match, and the water conditions match at 84 percent." He adds that the difference in water conditions is probably because the roadside survey includes temporary water such as road ditches and stock dams, which the aerial survey leaves out.

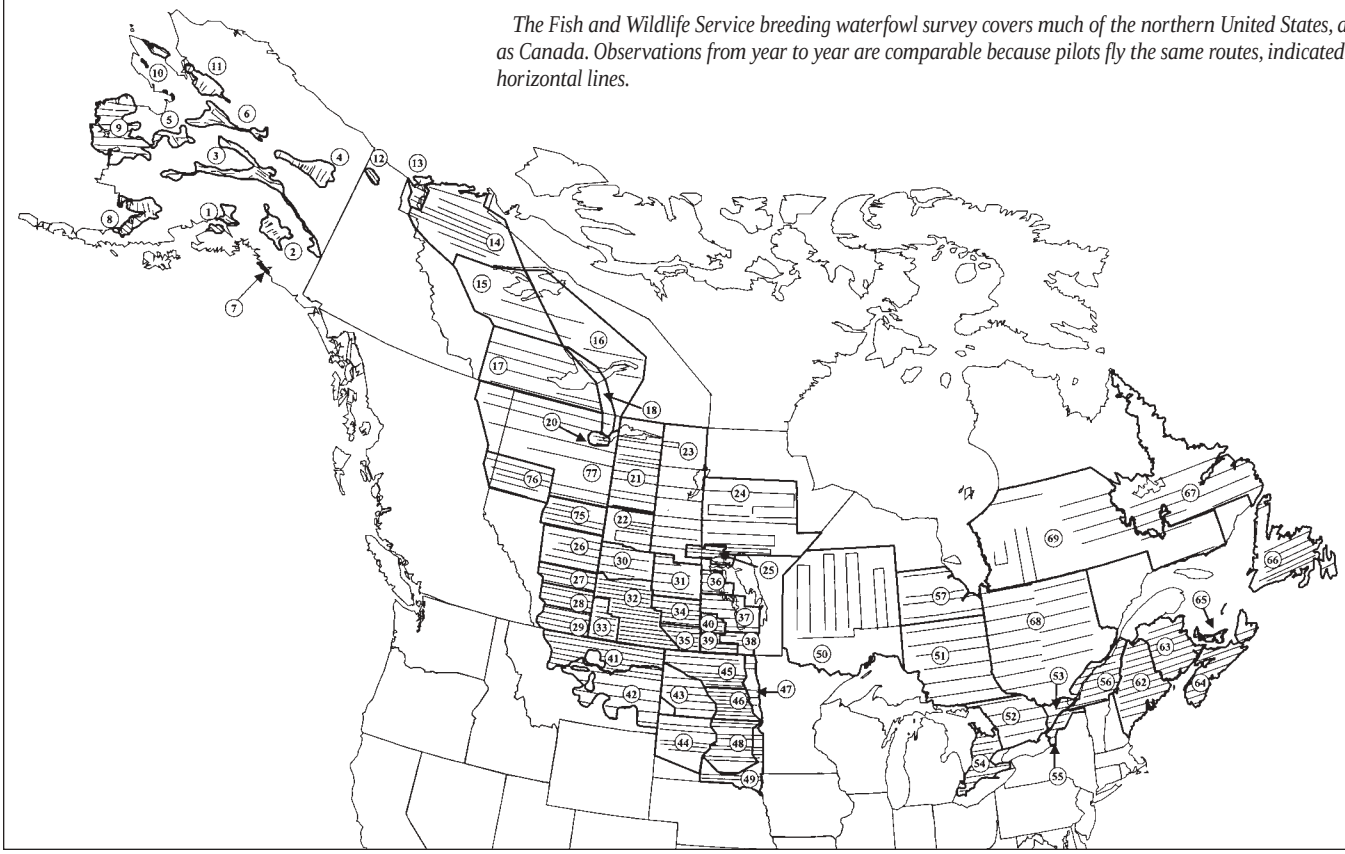
Johnson is quick to point out the importance of the aerial survey. "It's critical. There wouldn't be a hunting season without it," he says. "There are two necessities to setting

Location of the eight ground transects used for the Game and Fish Department breeding duck survey in North Dakota.



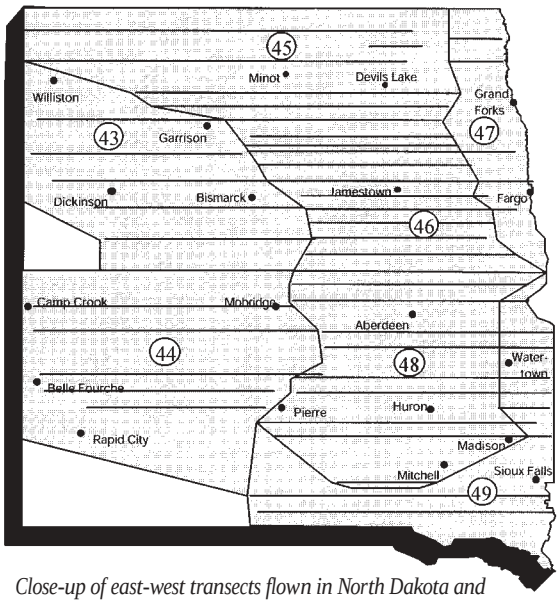
ND GAME AND FISH DEPARTMENT

The Fish and Wildlife Service breeding waterfowl survey covers much of the northern United States, as well as Canada. Observations from year to year are comparable because pilots fly the same routes, indicated by horizontal lines.



USFWS

seasons, an estimate of population, and an estimate of harvest. The aerial surveys give us the population estimate."



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Close-up of east-west transects flown in North Dakota and South Dakota by U.S. Fish and Wildlife Service pilots each year.

Another enthusiastic supporter of the aerial surveys is Lloyd Jones, refuge coordinator for the Fish and Wildlife Service in the Dakotas. "Without this information, we would only be guessing when we set waterfowl bag limits or season lengths. And if we guessed wrong, we could hurt waterfowl numbers and be forced to close or severely restrict seasons to allow recovery. The survey numbers allow us to better predict what adjustments need to be made," he said.

Jones points to one example: "We can recognize problems with certain species such as scaup or pintail. The survey has told us that there is a trend of decreasing numbers for these ducks. We now have initiated specific research to better understand why. Without the survey, the numbers may have dropped to a dangerously low level before any action was taken. We now have the opportunity to learn, and work to bring their numbers back to higher levels."

The ongoing survey also allows monitoring of habitat condition changes. "If loss of wetlands or the presence of contaminants are hurting populations," notes Jones, "the survey will help identify an impact to the populations. If we didn't survey every year, very dramatic and potentially harmful changes could be occurring on the landscape. With the survey, we would see the impacts to the population."

Counting from Above

Pilot-biologist Solberg says it took him a few years to get good at waterfowl identification from above, but he offers this advice: It helps to have many years experience in waterfowl hunting and in bird watching. Identification is much easier if the birds flush when the plane approaches, because then you can get a better look at their wings and wing patterns.

Dabbling ducks such as mallards, pintails and teal often flush, Solberg notes, but diving ducks like scaup and canvasbacks usually dive. Solberg believes ruddy ducks are some of the more elusive of about 30 species to "catch" from the air, as they often escape from threats by diving early, leaving only rings in the water by the time the survey aircraft arrives.

Solberg says knowing where to look is an important piece of the identification puzzle. "You learn where to look; to tie behavior and habits into your scan," he said.

For example, mallards are usually near the edge of vegetation, while scaup and canvasback spend most of their time in open water, and green-winged teal are often found up against emergent vegetation or up in the grass.

"We always scan the open areas first as we approach a wetland," notes Solberg. "That way, we get the easy identifications out of the way first, and concentrate on vegetated areas when we get closer."

One final piece of advice from the veteran pilot-biologist: "When the pilot tells you it's going to be hot and humid and there could be some turbulence, make sure you have the air-sickness bag handy."

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